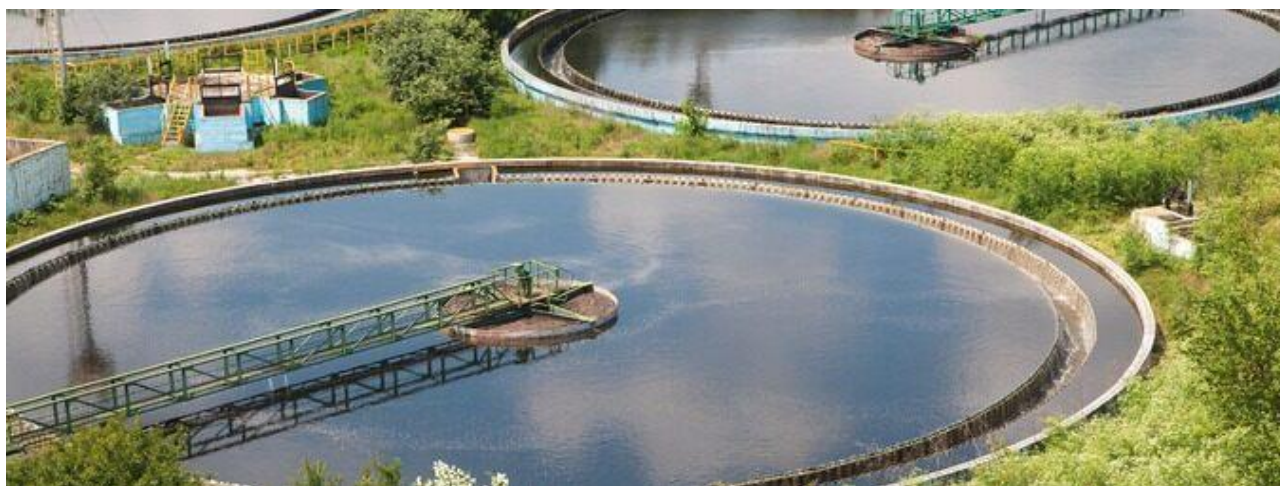


LAVAwave Application Noted



Digestion of Wastewater Sample



Heavy metals are an important parameter in wastewater analysis. Digestion of samples which contain organics will create high pressures due to the evolution of gaseous digestion products that may cause a loss of analytes. The advances in microwave technology, that can prevent the loss of analytes and less contaminated on the digestion process. Digests produced by microwaves are suitable for analysis by inductively coupled plasma mass spectrometry (ICP-MS), flame atomic absorption spectrophotometry (AAS), and graphite furnace atomic absorption spectrophotometry (GFAA).

- Instrument**

The measurements were performed using the LAVAwave LV-12



- Sample and reagent**

Wastewater: 5.0 mL

Reagent : HNO_3 65% 6.0 mL

H_2O_2 30% 2.0 mL

HF40% 1.0 mL

- Method Procedure**

Pipette 5.0 mL of the sample into the inner vessels added 6.0 mL(HNO_3) 2.0 mL (H_2O_2) and 1.0 mL (HF) and then swirl the mixture and placed in a fume hood until vapor from reaction disappears. The inner vessels were closing and put into the outer vessels and sealed. After that placed in the microwave equipment and set the temperature and pressure program as below:

- | | | | | | | |
|---|---|---|---|---|---|---|
| <ul style="list-style-type: none"> Wastewater 5.0 mL HNO_3 5.0 mL H_2O_2 2.0 mL HF40% 1.0 mL | → |  | → |  | → |  |
|---|---|---|---|---|---|---|

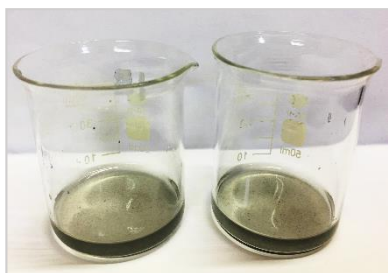


- Program setting

Step	Pressure (Bar)	Temperature (°C)	Power (W)	Heat Time (s)	Hold Time (s)
1	5	100	1000	300	60
2	10	140	1000	240	60
3	20	180	1000	240	500

- Result

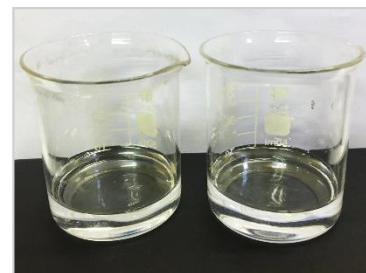
Clear colorless solution.



Wastewater sample



Before digestion



After digestion



The LAVAwave is a kind selection to digest the environmental sample that provides complete digestion, small reagent consumption and saving-time operate. Moreover, can apply with many types of environmental sample, for example, sludges, sewage, clay, sediment and etc.



"Safety is a part science"

Lab operator must wear safety goggles, face mask, gloves and body protection at all times.